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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,283	04/14/2004	Ching-Pang Lee	146806	6202

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EXAMINER	
WIEHE, NATHANIEL EDWARD	
ART UNIT	**PAPER NUMBER**
3745	

DATE MAILED: 03/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/824,283	LEE ET AL.	
	Examiner	Art Unit	
	Nathan Wiehe	3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-7 and 9-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-7 and 9-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 23 January 2006 have been fully considered but they are not persuasive. The applicant's arguments primarily revolve around lack of Winstanley teaching the use of a pressure side and/or cooling circuit. However, the amendment to the claims requires Winstanley to be combined with the teaching of Corsmeier, specifically having pressure and suction side cooling passages. Applicant argues that Corsmeier does not contain a plurality of rib walls extending at least partially between the sidewalls, said plurality of rib walls define at least one purge chamber and therefore can not be combined with Winstanley and further teaches away from Winstanley. However, the Federal Circuit has explained, "to establish obviousness based on a combination of elements discloses in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the Applicant." In re Kotzab, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000). MPEP 2143.01 (Applicant's Remarks, page 11). In this case, Corsmeier clearly indicates the motivation to create cooling circuits extending along the pressure and suction sides for the desired effect of providing efficient localized cooling (Corsmeier column 2, lines 51-54). Thus only the locations Winstanley's cooling circuits are being modified and not the internal construction of said circuits. Further, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 USPQ 375 (FED. CIR. 1986).

In regard to the Applicant's arguments regarding the combination of Winstanley and Jackson. The rejection of claims 13 and 20 are withdrawn and considered irrelevant due to the additional limitations introduced by the amendment.

Claim Objections

Claims 3 and 9 are objected to because of the following informalities:

In claim 3, line 1, "with claim 2" should read --with claim 1-- and

In claim 9, line 1, "with claim 8" should read --with claim 7--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,3-7 and 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winstanley (5,246,340) in view of Corsmeier (5,813,835). Winstanley discloses an airfoil (14), used in a gas turbine engine (10), including a first sidewall (22) and second sidewall (24) coupled together at leading edge (18) and trailing edge (20), which defines an internal cavity. Winstanley's airfoil also includes rib walls (40,42,44), which define a cooling circuit in which cooling fluid travels from a feed chamber (56) to a transition chamber (58) and then to an ejection chamber (60-66). The chambers of Winstanley's airfoil are joined in flow communication with each other by openings (43,45) in said rib walls. Winstanley's airfoil also includes a plurality of film

cooling holes (70) in sidewall (22) extending into cooling chamber (60-66) and trailing edge slots (72) extending into cooling chamber (60-66). Winstanley's airfoil further includes a leading edge circuit including a feed chamber (54) and a cooling chamber (52) in flow communication with each other by a plurality of openings (39). Winstanley does not disclose the use of pressure and suction side circuits or a purge chamber. Corsmeier discloses a cooled gas turbine airfoil (16), which includes a pressure side and suction side cooling circuit (22,24). Also, Corsmeier discloses the use of purge chambers (26) provided with exhausted cooling air that has already been warmed through other cooling processes. The presence of pressure and suction sidewall cooling circuits as well as purge chambers provides for efficient localized cooling and a favorable temperature gradient throughout the blade (Corsmeier column 2, line 48-column 3, line 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the airfoil of Winstanley by locating cooling circuits on the pressure and suction sides and including purge chambers, as taught by Corsmeier in order to compensate for the differential heat loading on the two sides of the airfoil providing a blade with a favorable thermal gradient throughout.

In regard to claims 1, and 3-6 the method of fabrication would have been apparent from modified invention of Winstanley.

In regard to claims 13 and 14, Applicant has not defined the cooling of the purge chamber above the fact that heat is transferred out of the walls by the flow in the adjacent cooling circuits. Specifically, Applicant has not established the purge chamber as being devoid of cooling air or only provided with cooling air other than the primary air

provided to the cooling circuits. Therefor, the purge chamber of Corsmeier meets the claim limitation in so much as it provided with secondary exhausted cooling air and not the primary flow of cooling circuit air.

In regard to claims 13 and 20, the heat transfer caused by the cooling fluid is inherent from the material properties of the blade. Further, Corsmeier discusses the need to prevent overcooling of the purge chamber.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Wiehe whose telephone number is (571)272-

8648. The examiner can normally be reached on Mon.-Thur. and alternate Fri., 7am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571)272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nathan Wiehe
Examiner
Art Unit 3745

EDWARD K. LOOK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

2/27/06